

## SEQUENCE LISTING

&lt;110&gt; CHUGAI SEIYAKU KABUSHIKI KAISHA

<120> Nonhuman animal for constructing antibody and method and system of constructing antibody using the same

<130> C1-A0326P

<150> JP2004-107669

<151> 2004-03-31

<160> 10

&lt;170&gt; PatentIn version 3.1

<210> 1

**<211> 1539**

**<212> DNA**

〈213〉 Baculovirus

**<220>**

**<221> CDS**

**<222> (1).. (1539)**

〈223〉

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tct gcc ttt gcg gcg gag cac tgc aac gcg caa atg aag acg ggt ccg 96  
Ser Ala Phe Ala Ala Glu His Cys Asn Ala Gln Met Lys Thr Gly Pro  
20 25 30

tac aag att aaa aac ttg gac att acc ccg ccc aag gaa acg ctg caa 144  
Tyr Lys Ile Lys Asn Leu Asp Ile Thr Pro Pro Lys Glu Thr Leu Gln

35	40	45	
aag gac gtg gaa atc acc atc gtg gag acg gac tac aac gaa aac gtg			192
Lys Asp Val Glu Ile Thr Ile Val Glu Thr Asp Tyr Asn Glu Asn Val			
50	55	60	
att atc ggc tac aag ggg tac tac cag gcg tat gcg tac aac ggc ggc			240
Ile Ile Gly Tyr Lys Gly Tyr Tyr Gln Ala Tyr Ala Tyr Asn Gly Gly			
65	70	75	80
tcg ctg gat ccc aac aca cgc gtc gaa gaa acc atg aaa acg ctg aat			288
Ser Leu Asp Pro Asn Thr Arg Val Glu Glu Thr Met Lys Thr Leu Asn			
85	90	95	
gtg ggc aaa gag gat ttg ctt atg tgg agc atc agg cag cag tgc gag			336
Val Gly Lys Glu Asp Leu Leu Met Trp Ser Ile Arg Gln Gln Cys Glu			
100	105	110	
gtg ggc gaa gag ctg atc gac cgt tgg ggc agt gac agc gac gac tgt			384
Val Gly Glu Glu Leu Ile Asp Arg Trp Gly Ser Asp Ser Asp Asp Cys			
115	120	125	
ttt cgc gac aac gag ggc cgc ggc cag tgg gtc aaa ggc aaa gag ttg			432
Phe Arg Asp Asn Glu Gly Arg Gly Gln Trp Val Lys Gly Lys Glu Leu			
130	135	140	
gtg aag cgg cag aat aac aat cac ttt gcg cac cac acg tgc aac aaa			480
Val Lys Arg Gln Asn Asn Asn His Phe Ala His His Thr Cys Asn Lys			
145	150	155	160
tcg tgg cga tgc ggc att tcc act tcg aaa atg tac agc agg ctc gag			528
Ser Trp Arg Cys Gly Ile Ser Thr Ser Lys Met Tyr Ser Arg Leu Glu			
165	170	175	
tgc cag gac gac acg gac gag tgc cag gta tac att ttg gac gct gag			576
Cys Gln Asp Asp Thr Asp Glu Cys Gln Val Tyr Ile Leu Asp Ala Glu			
180	185	190	

ggc aac ccc atc aac gtg acc gtg gac act gtg ctt cat cga gac ggc	624
Gly Asn Pro Ile Asn Val Thr Val Asp Thr Val Leu His Arg Asp Gly	
195 200 205	
gtg agt atg att ctc aaa caa aag tct acg ttc acc acg cgc caa ata	672
Val Ser Met Ile Leu Lys Gln Lys Ser Thr Phe Thr Thr Arg Gln Ile	
210 215 220	
aaa gct gcg tgt ctg ctc att aaa gat gac aaa aat aac ccc gag tcg	720
Lys Ala Ala Cys Leu Leu Ile Lys Asp Asp Lys Asn Asn Pro Glu Ser	
225 230 235 240	
gtg aca cgc gaa cac tgt ttg att gac aat gat ata tat gat ctt tct	768
Val Thr Arg Glu His Cys Leu Ile Asp Asn Asp Ile Tyr Asp Leu Ser	
245 250 255	
aaa aac acg tgg aac tgc aag ttt aac aga tgc att aaa cgc aaa gtc	816
Lys Asn Thr Trp Asn Cys Lys Phe Asn Arg Cys Ile Lys Arg Lys Val	
260 265 270	
gag cac cga gtc aag aag cgg ccg ccc act tgg cgc cac aac gtt aga	864
Glu His Arg Val Lys Lys Arg Pro Pro Thr Trp Arg His Asn Val Arg	
275 280 285	
gcc aag tac aca gag gga gac act gcc acc aaa ggc gac ctg atg cat	912
Ala Lys Tyr Thr Glu Gly Asp Thr Ala Thr Lys Gly Asp Leu Met His	
290 295 300	
att caa gag gag ctg atg tac gaa aac gat ttg ctg aaa atg aac att	960
Ile Gln Glu Glu Leu Met Tyr Glu Asn Asp Leu Leu Lys Met Asn Ile	
305 310 315 320	
gag ctg atg cat gcg cac atc aac aag cta aac aat atg ctg cac gac	1008
Glu Leu Met His Ala His Ile Asn Lys Leu Asn Asn Met Leu His Asp	
325 330 335	

ctg ata gtc tcc gtg gcc aag gtg gac gag cgt ttg att ggc aat ctc	1056
Leu Ile Val Ser Val Ala Lys Val Asp Glu Arg Leu Ile Gly Asn Leu	
340 345 350	
atg aac aac tct gtt tct tca aca ttt ttg tgc gac gac acg ttt ttg	1104
Met Asn Asn Ser Val Ser Ser Thr Phe Leu Ser Asp Asp Thr Phe Leu	
355 360 365	
ctg atg ccg tgc acc aat ccg ccg gca cac acc agt aat tgc tac aac	1152
Leu Met Pro Cys Thr Asn Pro Pro Ala His Thr Ser Asn Cys Tyr Asn	
370 375 380	
aac agc atc tac aaa gaa ggg cgt tgg gtg gcc aac acg gac tgc tgc	1200
Asn Ser Ile Tyr Lys Glu Gly Arg Trp Val Ala Asn Thr Asp Ser Ser	
385 390 395 400	
caa tgc ata gat ttt agc aac tac aag gaa cta gca att gac gac gac	1248
Gln Cys Ile Asp Phe Ser Asn Tyr Lys Glu Leu Ala Ile Asp Asp Asp	
405 410 415	
gtc gag ttt tgg atc ccg acc atc ggc aac acg acc tat cac gac agt	1296
Val Glu Phe Trp Ile Pro Thr Ile Gly Asn Thr Thr Tyr His Asp Ser	
420 425 430	
tgg aaa gat gcc agc ggc tgg tgc ttt att gcc caa caa aaa agc aac	1344
Trp Lys Asp Ala Ser Gly Trp Ser Phe Ile Ala Gln Gln Lys Ser Asn	
435 440 445	
ctc ata acc acc atg gag aac acc aag ttt ggc ggc gtc ggc acc agt	1392
Leu Ile Thr Thr Met Glu Asn Thr Lys Phe Gly Gly Val Gly Thr Ser	
450 455 460	
ctg agc gac atc act tcc atg gct gaa ggc gaa ttg gcc gct aaa ttg	1440
Leu Ser Asp Ile Thr Ser Met Ala Glu Gly Glu Leu Ala Ala Lys Leu	
465 470 475 480	
act tgc ttc atg ttt ggt cat gta gtt aac ttt gta att ata tta att	1488

Thr Ser Phe Met Phe Gly His Val Val Asn Phe Val Ile Ile Leu Ile  
 485 490 495

gtg att tta ttt ttg tac tgt atg att aga aac cgt aat aga caa tat 1536  
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taa 1539

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 <212> PRT  
 <213> Baculovirus

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Tyr Lys Ile Lys Asn Leu Asp Ile Thr Pro Pro Lys Glu Thr Leu Gln  
 35 40 45

Lys Asp Val Glu Ile Thr Ile Val Glu Thr Asp Tyr Asn Glu Asn Val  
 50 55 60

Ile Ile Gly Tyr Lys Gly Tyr Tyr Gln Ala Tyr Ala Tyr Asn Gly Gly  
 65 70 75 80

Ser Leu Asp Pro Asn Thr Arg Val Glu Glu Thr Met Lys Thr Leu Asn  
 85 90 95

Val Gly Lys Glu Asp Leu Leu Met Trp Ser Ile Arg Gln Gln Cys Glu  
 100 105 110

Val Gly Glu Glu Leu Ile Asp Arg Trp Gly Ser Asp Ser Asp Asp Cys  
 115 120 125

Phe Arg Asp Asn Glu Gly Arg Gly Gln Trp Val Lys Gly Lys Glu Leu  
 130 135 140

Val Lys Arg Gln Asn Asn Asn His Phe Ala His His Thr Cys Asn Lys  
 145 150 155 160

Ser Trp Arg Cys Gly Ile Ser Thr Ser Lys Met Tyr Ser Arg Leu Glu  
 165 170 175

Cys Gln Asp Asp Thr Asp Glu Cys Gln Val Tyr Ile Leu Asp Ala Glu  
 180 185 190

Gly Asn Pro Ile Asn Val Thr Val Asp Thr Val Leu His Arg Asp Gly  
 195 200 205

Val Ser Met Ile Leu Lys Gln Lys Ser Thr Phe Thr Thr Arg Gln Ile  
 210 215 220

Lys Ala Ala Cys Leu Leu Ile Lys Asp Asp Lys Asn Asn Pro Glu Ser  
 225 230 235 240

Val Thr Arg Glu His Cys Leu Ile Asp Asn Asp Ile Tyr Asp Leu Ser  
 245 250 255

Lys Asn Thr Trp Asn Cys Lys Phe Asn Arg Cys Ile Lys Arg Lys Val  
 260 265 270

Glu His Arg Val Lys Lys Arg Pro Pro Thr Trp Arg His Asn Val Arg  
 275 280 285

Ala Lys Tyr Thr Glu Gly Asp Thr Ala Thr Lys Gly Asp Leu Met His  
 290 295 300

Ile Gln Glu Glu Leu Met Tyr Glu Asn Asp Leu Leu Lys Met Asn Ile

305	310	315	320
Glu Leu Met His Ala His Ile Asn Lys Leu Asn Asn Met Leu His Asp			
	325	330	335
Leu Ile Val Ser Val Ala Lys Val Asp Glu Arg Leu Ile Gly Asn Leu			
	340	345	350
Met Asn Asn Ser Val Ser Ser Thr Phe Leu Ser Asp Asp Thr Phe Leu			
	355	360	365
Leu Met Pro Cys Thr Asn Pro Pro Ala His Thr Ser Asn Cys Tyr Asn			
	370	375	380
Asn Ser Ile Tyr Lys Glu Gly Arg Trp Val Ala Asn Thr Asp Ser Ser			
385	390	395	400
Gln Cys Ile Asp Phe Ser Asn Tyr Lys Glu Leu Ala Ile Asp Asp Asp			
	405	410	415
Val Glu Phe Trp Ile Pro Thr Ile Gly Asn Thr Thr Tyr His Asp Ser			
	420	425	430
Trp Lys Asp Ala Ser Gly Trp Ser Phe Ile Ala Gln Gln Lys Ser Asn			
	435	440	445
Leu Ile Thr Thr Met Glu Asn Thr Lys Phe Gly Gly Val Gly Thr Ser			
	450	455	460
Leu Ser Asp Ile Thr Ser Met Ala Glu Gly Glu Leu Ala Ala Lys Leu			
465	470	475	480
Thr Ser Phe Met Phe Gly His Val Val Asn Phe Val Ile Ile Leu Ile			
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<220>  
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 tct gcc ttt gcg gcg gag cac tgc aac gcg caa atg aag acg ggt ccg 96  
 Ser Ala Phe Ala Ala Glu His Cys Asn Ala Gln Met Lys Thr Gly Pro  
 20 25 30  
 tac aag att aaa aac ttg gac att acc ccg ccc aag gaa acg ctg caa 144  
 Tyr Lys Ile Lys Asn Leu Asp Ile Thr Pro Pro Lys Glu Thr Leu Gln  
 35 40 45  
 aag gac gtg gaa atc acc atc gtg gag acg gac tac aac gaa aac gtg 192  
 Lys Asp Val Glu Ile Thr Ile Val Glu Thr Asp Tyr Asn Glu Asn Val  
 50 55 60  
 att atc ggc tac aag ggg tac tac cag gcg tat gcg tac aac ggc ggc 240  
 Ile Ile Gly Tyr Lys Gly Tyr Tyr Gln Ala Tyr Ala Tyr Asn Gly Gly  
 65 70 75 80  
 tcg ctg gat ccc aac aca cgc gtc gaa gaa acc atg aaa acg ctg aat 288  
 Ser Leu Asp Pro Asn Thr Arg Val Glu Glu Thr Met Lys Thr Leu Asn  
 85 90 95



gtg ggc aaa gag gat ttg ctt atg tgg agc atc agg cag cag tgc gag	336
Val Gly Lys Glu Asp Leu Leu Met Trp Ser Ile Arg Gln Gln Cys Glu	
100 105 110	
gtg ggc gaa gag ctg atc gac cgt tgg ggc agt gac agc gac gac tgt	384
Val Gly Glu Glu Leu Ile Asp Arg Trp Gly Ser Asp Ser Asp Asp Cys	
115 120 125	
ttt cgc gac aac gag ggc cgc ggc cag tgg gtc aaa ggc aaa gag ttg	432
Phe Arg Asp Asn Glu Gly Arg Gly Gln Trp Val Lys Gly Lys Glu Leu	
130 135 140	
gtg aag cgg cag aat aac aat cac ttt gcg cac cac acg tgc aac aaa	480
Val Lys Arg Gln Asn Asn Asn His Phe Ala His His Thr Cys Asn Lys	
145 150 155 160	
tcg tgg cga tgc ggc att tcc act tcg aaa atg tac agc agg ctc gag	528
Ser Trp Arg Cys Gly Ile Ser Thr Ser Lys Met Tyr Ser Arg Leu Glu	
165 170 175	
tgc cag gac gac acg gac gag tgc cag gta tac att ttg gac gct gag	576
Cys Gln Asp Asp Thr Asp Glu Cys Gln Val Tyr Ile Leu Asp Ala Glu	
180 185 190	
ggc aac ccc atc aac gtg acc gtg gac act gtg ctt cat cga gac ggc	624
Gly Asn Pro Ile Asn Val Thr Val Asp Thr Val Leu His Arg Asp Gly	
195 200 205	
gtg agt atg att ctc aaa caa aag tct acg ttc acc acg cgc caa ata	672
Val Ser Met Ile Leu Lys Gln Lys Ser Thr Phe Thr Thr Arg Gln Ile	
210 215 220	
aaa gct gcg tgt ctg ctc att aaa gat gac aaa aat aac ccc gag tcg	720
Lys Ala Ala Cys Leu Leu Ile Lys Asp Asp Lys Asn Asn Pro Glu Ser	
225 230 235 240	
gtg aca cgc gaa cac tgt ttg att gac aat gat ata tat gat ctt tct	768

Val Thr Arg Glu His Cys Leu Ile Asp Asn Asp Ile Tyr Asp Leu Ser	
245 250 255	
aaa aac acg tgg aac tgc aag ttt aac aga tgc att aaa cgc aaa gtc	816
Lys Asn Thr Trp Asn Cys Lys Phe Asn Arg Cys Ile Lys Arg Lys Val	
260 265 270	
gag cac cga gtc aag aag cgg ccg ccc act tgg cgc cac aac gtt aga	864
Glu His Arg Val Lys Lys Arg Pro Pro Thr Trp Arg His Asn Val Arg	
275 280 285	
gcc aag tac aca gag gga gac act gcc acc aaa ggc gac ctg atg cat	912
Ala Lys Tyr Thr Glu Gly Asp Thr Ala Thr Lys Gly Asp Leu Met His	
290 295 300	
att caa gag gag ctg atg tac gaa aac gat ttg ctg aaa atg aac att	960
Ile Gln Glu Glu Leu Met Tyr Glu Asn Asp Leu Leu Lys Met Asn Ile	
305 310 315 320	
gag ctg atg cat gcg cac atc aac aag cta aac aat atg ctg cac gac	1008
Glu Leu Met His Ala His Ile Asn Lys Leu Asn Asn Met Leu His Asp	
325 330 335	
ctg ata gtc tcc gtg gcc aag gtg gac gag cgt ttg att ggc aat ctc	1056
Leu Ile Val Ser Val Ala Lys Val Asp Glu Arg Leu Ile Gly Asn Leu	
340 345 350	
atg aac aac tct gtt tct tca aca ttt ttg tcg gac gac acg ttt ttg	1104
Met Asn Asn Ser Val Ser Ser Thr Phe Leu Ser Asp Asp Thr Phe Leu	
355 360 365	
ctg atg ccg tgc acc aat ccg ccg gca cac acc agt aat tgc tac aac	1152
Leu Met Pro Cys Thr Asn Pro Pro Ala His Thr Ser Asn Cys Tyr Asn	
370 375 380	
aac agc atc tac aaa gaa ggg cgt tgg gtg gcc aac acg gac tcg tcg	1200
Asn Ser Ile Tyr Lys Glu Gly Arg Trp Val Ala Asn Thr Asp Ser Ser	

385	390	395	400	
caa tgc ata gat ttt agc aac tac aag gaa cta gca att gac gac gac				1248
Gln Cys Ile Asp Phe Ser Asn Tyr Lys Glu Leu Ala Ile Asp Asp Asp				
	405	410	415	
gtc gag ttt tgg atc ccg acc atc ggc aac acg acc tat cac gac agt				1296
Val Glu Phe Trp Ile Pro Thr Ile Gly Asn Thr Thr Tyr His Asp Ser				
	420	425	430	
tgg aaa gat gcc agc ggc tgg tcg ttt att gcc caa caa aaa agc aac				1344
Trp Lys Asp Ala Ser Gly Trp Ser Phe Ile Ala Gln Gln Lys Ser Asn				
	435	440	445	
ctc ata acc acc atg gag aac acc aag ttt ggc ggc gtc ggc acc agt				1392
Leu Ile Thr Thr Met Glu Asn Thr Lys Phe Gly Gly Val Gly Thr Ser				
	450	455	460	
ctg agc gac atc act tcc atg gct gaa ggc gaa ttg gcc gct aaa ttg				1440
Leu Ser Asp Ile Thr Ser Met Ala Glu Gly Glu Leu Ala Ala Lys Leu				
465	470	475	480	
act tcg ttc atg ttt ggt cat gta				1464
Thr Ser Phe Met Phe Gly His Val				
	485			

&lt;210&gt; 4

&lt;211&gt; 488

&lt;212&gt; PRT

&lt;213&gt; Baculovirus

&lt;400&gt; 4

Met Val Ser Ala Ile Val Leu Tyr Val Leu Leu Ala Ala Ala His

1

5

10

15

Ser Ala Phe Ala Ala Glu His Cys Asn Ala Gln Met Lys Thr Gly Pro

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Tyr Lys Ile Lys Asn Leu Asp Ile Thr Pro Pro Lys Glu Thr Leu Gln		
35	40	45
Lys Asp Val Glu Ile Thr Ile Val Glu Thr Asp Tyr Asn Glu Asn Val		
50	55	60
Ile Ile Gly Tyr Lys Gly Tyr Tyr Gln Ala Tyr Ala Tyr Asn Gly Gly		
65	70	75
Ser Leu Asp Pro Asn Thr Arg Val Glu Glu Thr Met Lys Thr Leu Asn		
85	90	95
Val Gly Lys Glu Asp Leu Leu Met Trp Ser Ile Arg Gln Gln Cys Glu		
100	105	110
Val Gly Glu Glu Leu Ile Asp Arg Trp Gly Ser Asp Ser Asp Asp Cys		
115	120	125
Phe Arg Asp Asn Glu Gly Arg Gly Gln Trp Val Lys Gly Lys Glu Leu		
130	135	140
Val Lys Arg Gln Asn Asn Asn His Phe Ala His His Thr Cys Asn Lys		
145	150	155
Ser Trp Arg Cys Gly Ile Ser Thr Ser Lys Met Tyr Ser Arg Leu Glu		
165	170	175
Cys Gln Asp Asp Thr Asp Glu Cys Gln Val Tyr Ile Leu Asp Ala Glu		
180	185	190
Gly Asn Pro Ile Asn Val Thr Val Asp Thr Val Leu His Arg Asp Gly		
195	200	205
Val Ser Met Ile Leu Lys Gln Lys Ser Thr Phe Thr Thr Arg Gln Ile		
210	215	220

Lys Ala Ala Cys Leu Leu Ile Lys Asp Asp Lys Asn Asn Pro Glu Ser  
 225 230 235 240

Val Thr Arg Glu His Cys Leu Ile Asp Asn Asp Ile Tyr Asp Leu Ser  
 245 250 255

Lys Asn Thr Trp Asn Cys Lys Phe Asn Arg Cys Ile Lys Arg Lys Val  
 260 265 270

Glu His Arg Val Lys Lys Arg Pro Pro Thr Trp Arg His Asn Val Arg  
 275 280 285

Ala Lys Tyr Thr Glu Gly Asp Thr Ala Thr Lys Gly Asp Leu Met His  
 290 295 300

Ile Gln Glu Glu Leu Met Tyr Glu Asn Asp Leu Leu Lys Met Asn Ile  
 305 310 315 320

Glu Leu Met His Ala His Ile Asn Lys Leu Asn Asn Met Leu His Asp  
 325 330 335

Leu Ile Val Ser Val Ala Lys Val Asp Glu Arg Leu Ile Gly Asn Leu  
 340 345 350

Met Asn Asn Ser Val Ser Ser Thr Phe Leu Ser Asp Asp Thr Phe Leu  
 355 360 365

Leu Met Pro Cys Thr Asn Pro Pro Ala His Thr Ser Asn Cys Tyr Asn  
 370 375 380

Asn Ser Ile Tyr Lys Glu Gly Arg Trp Val Ala Asn Thr Asp Ser Ser  
 385 390 395 400

Gln Cys Ile Asp Phe Ser Asn Tyr Lys Glu Leu Ala Ile Asp Asp Asp  
 405 410 415

Val Glu Phe Trp Ile Pro Thr Ile Gly Asn Thr Thr Tyr His Asp Ser  
                   420                  425                  430

Trp Lys Asp Ala Ser Gly Trp Ser Phe Ile Ala Gln Gln Lys Ser Asn  
                   435                  440                  445

Leu Ile Thr Thr Met Glu Asn Thr Lys Phe Gly Gly Val Gly Thr Ser  
                   450                  455                  460

Leu Ser Asp Ile Thr Ser Met Ala Glu Gly Glu Leu Ala Ala Lys Leu  
                   465                  470                  475                  480

Thr Ser Phe Met Phe Gly His Val  
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<223> an artificially synthesized primer sequence

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<211> 33

<212> DNA

<213> Artificial

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gaatttctcat tatacatgac caaacatgaa cga

33

<210> 7

<211> 17

<212> DNA

<213> Artificial

<220>

<223> an artificially synthesized primer sequence

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taatacgact cactata

17

<210> 8

<211> 24

<212> DNA

<213> Artificial

<220>

<223> an artificially synthesized primer sequence

<400> 8

catacgattt aggtgacact atag

24

<210> 9

<211> 1486

<212> DNA

<213> Baculovirus

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<221> CDS

<222> (2).. (1474)

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Asn Ser Thr Met Val Ser Ala Ile Val Leu Tyr Val Leu Leu Ala Ala

1 5 10 15

gcg gcg cat tct gcc ttt gcg gcg gag cac tgc aac gcg caa atg aag 97

Ala Ala His Ser Ala Phe Ala Ala Glu His Cys Asn Ala Gln Met Lys

20 25 30

acg ggt ccg tac aag att aaa aac ttg gac att acc ccg ccc aag gaa 145

Thr Gly Pro Tyr Lys Ile Lys Asn Leu Asp Ile Thr Pro Pro Lys Glu

35 40 45

acg ctg caa aag gac gtg gaa atc acc atc gtg gag acg gac tac aac 193

Thr Leu Gln Lys Asp Val Glu Ile Thr Ile Val Glu Thr Asp Tyr Asn

50 55 60

gaa aac gtg att atc ggc tac aag ggg tac tac cag gcg tat gcg tac 241

Glu Asn Val Ile Ile Gly Tyr Lys Gly Tyr Tyr Gln Ala Tyr Ala Tyr

65 70 75 80

aac ggc ggc tcg ctg gat ccc aac aca cgc gtc gaa gaa acc atg aaa 289

Asn Gly Gly Ser Leu Asp Pro Asn Thr Arg Val Glu Glu Thr Met Lys

85 90 95

acg ctg aat gtg ggc aaa gag gat ttg ctt atg tgg agc atc agg cag 337

Thr Leu Asn Val Gly Lys Glu Asp Leu Leu Met Trp Ser Ile Arg Gln

100 105 110

cag tgc gag gtg ggc gaa gag ctg atc gac cgt tgg ggc agt gac agc 385

Gln Cys Glu Val Gly Glu Glu Leu Ile Asp Arg Trp Gly Ser Asp Ser

115 120 125

gac gac tgt ttt cgc gac aac gag ggc cgc ggc cag tgg gtc aaa ggc 433

Asp Asp Cys Phe Arg Asp Asn Glu Gly Arg Gly Gln Trp Val Lys Gly

130 135 140



aaa gag ttg gtg aag cgg cag aat aac aat cac ttt gcg cac cac acg 481  
Lys Glu Leu Val Lys Arg Gln Asn Asn Asn His Phe Ala His His Thr  
145 150 155 160

tgc aac aaa tcg tgg cga tgc ggc att tcc act tcg aaa atg tac agc 529  
Cys Asn Lys Ser Trp Arg Cys Gly Ile Ser Thr Ser Lys Met Tyr Ser  
165 170 175

agg ctc gag tgc cag gac gac acg gac gag tgc cag gta tac att ttg 577  
Arg Leu Glu Cys Gln Asp Asp Thr Asp Glu Cys Gln Val Tyr Ile Leu  
180 185 190

gac gct gag ggc aac ccc atc aac gtg acc gtg gac act gtg ctt cat 625  
Asp Ala Glu Gly Asn Pro Ile Asn Val Thr Val Asp Thr Val Leu His  
195 200 205

cga gac ggc gtg agt atg att ctc aaa caa aag tct acg ttc acc acg 673  
 Arg Asp Gly Val Ser Met Ile Leu Lys Gln Lys Ser Thr Phe Thr Thr  
 210 215 220

cgc caa ata aaa gct gcg tgt ctg ctc att aaa gat gac aaa aat aac 721  
Arg Gln Ile Lys Ala Ala Cys Leu Leu Ile Lys Asp Asp Lys Asn Asn  
225 230 235 240

ccc gag tgc gtg aca cgc gaa cac tgt ttg att gac aat gat ata tat 769  
Pro Glu Ser Val Thr Arg Glu His Cys Leu Ile Asp Asn Asp Ile Tyr  
245 250 255

gat ctt tct aaa aac acg tgg aac tgc aag ttt aac aga tgc att aaa 817  
Asp Leu Ser Lys Asn Thr Trp Asn Cys Lys Phe Asn Arg Cys Ile Lys  
260 265 270

cgc aaa gtc gag cac cga gtc aag aag cgg ccg ccc act tgg cgc cac 865  
 Arg Lys Val Glu His Arg Val Lys Lys Arg Pro Pro Thr Trp Arg His  
 275 280 285

aac gtt aga gcc aag tac aca gag gga gac act gcc acc aaa ggc gac Asn Val Arg Ala Lys Tyr Thr Glu Gly Asp Thr Ala Thr Lys Gly Asp 290 295 300	913
ctg atg cat att caa gag gag ctg atg tac gaa aac gat ttg ctg aaa Leu Met His Ile Gln Glu Glu Leu Met Tyr Glu Asn Asp Leu Leu Lys 305 310 315 320	961
atg aac att gag ctg atg cat gcg cac atc aac aag cta aac aat atg Met Asn Ile Glu Leu Met His Ala His Ile Asn Lys Leu Asn Asn Met 325 330 335	1009
ctg cac gac ctg ata gtc tcc gtg gcc aag gtg gac gag cgt ttg att Leu His Asp Leu Ile Val Ser Val Ala Lys Val Asp Glu Arg Leu Ile 340 345 350	1057
ggc aat ctc atg aac aac tct gtt tct tca aca ttt ttg tcg gac gac Gly Asn Leu Met Asn Asn Ser Val Ser Ser Thr Phe Leu Ser Asp Asp 355 360 365	1105
acg ttt ttg ctg atg ccg tgc acc aat ccg ccg gca cac acc agt aat Thr Phe Leu Leu Met Pro Cys Thr Asn Pro Pro Ala His Thr Ser Asn 370 375 380	1153
tgc tac aac aac agc atc tac aaa gaa ggg cgt tgg gtg gcc aac acg Cys Tyr Asn Asn Ser Ile Tyr Lys Glu Gly Arg Trp Val Ala Asn Thr 385 390 395 400	1201
gac tcg tcg caa tgc ata gat ttt agc aac tac aag gaa cta gca att Asp Ser Ser Gln Cys Ile Asp Phe Ser Asn Tyr Lys Glu Leu Ala Ile 405 410 415	1249
gac gac gac gtc gag ttt tgg atc ccg acc atc ggc aac acg acc tat Asp Asp Asp Val Glu Phe Trp Ile Pro Thr Ile Gly Asn Thr Thr Tyr 420 425 430	1297
cac gac agt tgg aaa gat gcc agc ggc tgg tcg ttt att gcc caa caa	1345

His Asp Ser Trp Lys Asp Ala Ser Gly Trp Ser Phe Ile Ala Gln Gln  
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aaa agc aac ctc ata acc acc atg gag aac acc aag ttt ggc ggc gtc 1393  
 Lys Ser Asn Leu Ile Thr Thr Met Glu Asn Thr Lys Phe Gly Gly Val  
 450 455 460

ggc acc agt ctg agc gac atc act tcc atg gct gaa ggc gaa ttg gcc 1441  
 Gly Thr Ser Leu Ser Asp Ile Thr Ser Met Ala Glu Gly Glu Leu Ala  
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<400> 10

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Thr Gly Pro Tyr Lys Ile Lys Asn Leu Asp Ile Thr Pro Pro Lys Glu  
 35 40 45

Thr Leu Gln Lys Asp Val Glu Ile Thr Ile Val Glu Thr Asp Tyr Asn  
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Glu Asn Val Ile Ile Gly Tyr Lys Gly Tyr Tyr Gln Ala Tyr Ala Tyr  
 65 70 75 80

Asn Gly Gly Ser Leu Asp Pro Asn Thr Arg Val Glu Glu Thr Met Lys  
 85 90 95

Thr Leu Asn Val Gly Lys Glu Asp Leu Leu Met Trp Ser Ile Arg Gln  
 100 105 110

Gln Cys Glu Val Gly Glu Glu Leu Ile Asp Arg Trp Gly Ser Asp Ser  
 115 120 125

Asp Asp Cys Phe Arg Asp Asn Glu Gly Arg Gly Gln Trp Val Lys Gly  
 130 135 140

Lys Glu Leu Val Lys Arg Gln Asn Asn Asn His Phe Ala His His Thr  
 145 150 155 160

Cys Asn Lys Ser Trp Arg Cys Gly Ile Ser Thr Ser Lys Met Tyr Ser  
 165 170 175

Arg Leu Glu Cys Gln Asp Asp Thr Asp Glu Cys Gln Val Tyr Ile Leu  
 180 185 190

Asp Ala Glu Gly Asn Pro Ile Asn Val Thr Val Asp Thr Val Leu His  
 195 200 205

Arg Asp Gly Val Ser Met Ile Leu Lys Gln Lys Ser Thr Phe Thr Thr  
 210 215 220

Arg Gln Ile Lys Ala Ala Cys Leu Leu Ile Lys Asp Asp Lys Asn Asn  
 225 230 235 240

Pro Glu Ser Val Thr Arg Glu His Cys Leu Ile Asp Asn Asp Ile Tyr  
 245 250 255

Asp Leu Ser Lys Asn Thr Trp Asn Cys Lys Phe Asn Arg Cys Ile Lys  
 260 265 270

Arg Lys Val Glu His Arg Val Lys Lys Arg Pro Pro Thr Trp Arg His  
 275 280 285

Asn Val Arg Ala Lys Tyr Thr Glu Gly Asp Thr Ala Thr Lys Gly Asp  
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Leu Met His Ile Gln Glu Glu Leu Met Tyr Glu Asn Asp Leu Leu Lys  
 305 310 315 320

Met Asn Ile Glu Leu Met His Ala His Ile Asn Lys Leu Asn Asn Met  
 325 330 335

Leu His Asp Leu Ile Val Ser Val Ala Lys Val Asp Glu Arg Leu Ile  
 340 345 350

Gly Asn Leu Met Asn Asn Ser Val Ser Ser Thr Phe Leu Ser Asp Asp  
 355 360 365

Thr Phe Leu Leu Met Pro Cys Thr Asn Pro Pro Ala His Thr Ser Asn  
 370 375 380

Cys Tyr Asn Asn Ser Ile Tyr Lys Glu Gly Arg Trp Val Ala Asn Thr  
 385 390 395 400

Asp Ser Ser Gln Cys Ile Asp Phe Ser Asn Tyr Lys Glu Leu Ala Ile  
 405 410 415

Asp Asp Asp Val Glu Phe Trp Ile Pro Thr Ile Gly Asn Thr Thr Tyr  
 420 425 430

His Asp Ser Trp Lys Asp Ala Ser Gly Trp Ser Phe Ile Ala Gln Gln  
 435 440 445

Lys Ser Asn Leu Ile Thr Thr Met Glu Asn Thr Lys Phe Gly Gly Val  
 450 455 460

Gly Thr Ser Leu Ser Asp Ile Thr Ser Met Ala Glu Gly Glu Leu Ala  
 465 470 475 480

Ala Lys Leu Thr Ser Phe Met Phe Gly His Val  
 485 490